GRUMMAN plane news

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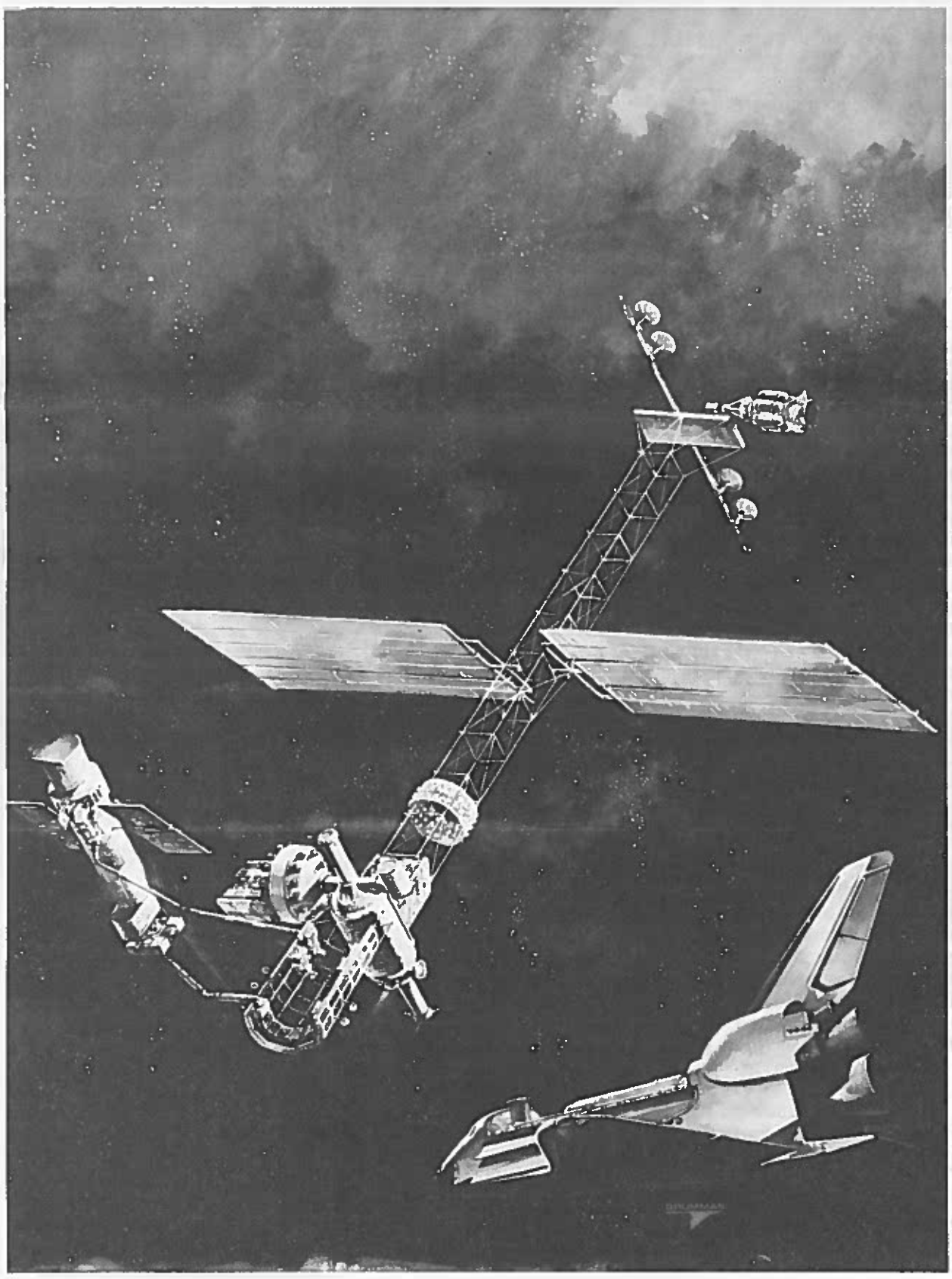

Grumman enters race to build space station

It looks a little like an exhibit one might find at a World's Fair or Walt Disney World Epcot. But instead of taking a plane to Florida, you can get there just going down the main aisle on the first floor of Plant 5.

The structure in Plant 5 is a mock-up of a Space Station control module and was built recently by the Product Development Operations Center (PDOC). It's testimony to the fact that Grumman Aerospace plans to be a serious contender for designing and building the proposed U.S. Space Station.

The Space Station got the go-ahead by President Ronald Reagan in his January 25 State of the Union address. He termed space the "next American frontier," and called for a manned Space Station that would be launched into orbit by the early 1990s.

"A Space Station will permit quantum leaps in our research in science, communications, and in metals and life-saving medicines, which can only be manufactured in space . . . NASA will invite other countries to participate so we can strengthen peace, build prosperity, and expand freedom for all who share our goals," Reagan declared in his address.

Following the broadcast, Grumman Aerospace President George Skurla called Reagan's move a "timely decision."

"Space is the new frontier, and this project will eventually lead to habitation, industrialization, and commercialization of space, with its military significance becoming more apparent as time goes by," Skurla said. Last October, Skurla was a member of an aerospace group that met with the President and urged he go forward with his space initiative. Through subsequent exchanged letters, Skurla urged President Reagan to pursue the Space Station for the 1990s.

Skurla also made it clear that Grumman will be in the running for Space Station contracts.

"We believe our prior design, manufacturing, and operational experience with the OAO and LM, along with prior involvement of senior management in these areas, gives the company strong credentials to be a major participant in the new national Space Station," he declared. "In addi-

(Continued on page 6)

news briefs

Dividend declared

A regular dividend of 22.5 cents per share has been declared by the Grumman Corporation board of directors. It will be payable on February 17 to holders of record as of February 7.

The board also declared a dividend of 70 cents per share on Grumman's $2.80 preferred stock, payable February 15 to holders of record as of February 3.

GII establishes office in Tokyo

Grumman Data Systems (GDS) has agreed to acquire CTEC, Inc., a McLean, Virginia, computer software and systems engineering firm.

As a wholly-owned subsidiary of GDS, the firm will be renamed Grumman-CTEC, Inc. Harold Crane — founder of CTEC and its chairman, president and majority stockholder — will remain with the new unit as its president. He will also be named a vice president of GDS.

Established in 1974, the company designs, builds, installs and maintains intelligent information systems. Sales are about $7 million per year and there are about 100 employees.

GDS President John O'Brien said, "This acquisition represents a step in a new direction for GDS. CTEC was attractive to us for several reasons." One is its McLean location. "Until now," said O'Brien, "GDS has only maintained marketing offices in Washington. We wanted to expand in this area, but we were interested in an operating facility. CTEC met that requirement.

"CTEC also marks our entry into the intelligence and surveillance markets," O'Brien added. "One segment, Command and Control, Communications and Intelligence (C^3I), has been of great interest to us for some time and it is one of CTEC's major strengths."

GDS to buy D.C. area firm

Grumman International, Inc. (GII) has established a new Regional office in Tokyo, which will cover Grumman activities in Japan, Korea, and Taiwan.

Frederick Carment has been appointed regional director, North Pacific Area, reporting directly to GII President Michael Pelehach. He will continue to be based in Tokyo, and from there will direct Grumman activities in Japan and Korea. Joe Tieng will continue as director of the GII office in Taipei, Taiwan, and will report to Carment.

The Regional Directorate in Singapore will cover activities in the ASEAN countries (Singapore, Malaysia, Indonesia, Thailand, and the Phillipines), as well as other countries in that area of the Pacific. Herbert Mosca will continue as vice president and will serve as regional director, ASEAN. Mosca will be based in Singapore and will report directly to Pelehach. William James will continue to be located in Singapore and will assist Mosca in all aforementioned areas.

The new Regional office in Tokyo was established to increase the effectiveness of GII's local presence in the Pacific.

All addresses and telephone/telex numbers for the above offices, as well as for the GII Regional Directorates in Paris, France, and Bethpage, N.Y., remain the same (516-575-6801).

Progress report on ACAP program

Work on Bell Helicopter Textron's Advanced Composite Airframe Program (ACAP) for the U.S. Army is proceeding right on schedule. Grumman Aerospace is Bell's major subcontractor on the ACAP, which was developed to evaluate and exploit potential advantages of new composite materials in the airframe structure of military aircraft.

The Tool Proof Article (TPA), which has completed final splice, is being used as a mock-up aid for the Flight Test Vehicle (FTV) and selected engineering tests. The TPA is a composite material fuselage which was constructed to prove out all fabrication, assembly and inspection techniques.

A major innovation is the construction of the main body of the fuselage in left and right half shells which then are joined lengthwise along the keel structure by hot adhesive bonding. Major components like the bulkheads and floors are subsequently hot bonded into the shells with a minimum of mechanical fasteners. Fasteners are used in significant numbers only in areas where major concentrated loads are introduced, such as the landing gear and transmission attach areas.

Grumman Aerospace is building the roof structure, floors and fuel cell bulkheads at Milledgeville Operations in Georgia. Menasco Inc., a division of Colt Industries, is in the process of completing fabrication of two shipsets of landing gears.

Light but tough. *This tool proof article is being used by Bell Helicopter as a mockup aid for its work on the U.S. Army's Advanced Composite Airframe Program (ACAP). As Bell's major subcontractor, Grumman is building about one-third of the composite parts for ACAP which will prove the feasibility of military airframes being made of nearly all composite materials.*

Construction of the FTV is also well underway. Completion, including installation of all systems and flight test instrumentation, is scheduled for this summer. A third article, the Static Test Article, will be completed about the same time.

According to Bell Helicopter Textron, all program objectives, including reduction of structural weight and initial acquisition cost reduction, are being met.

Bell, selected as one of the two winning ACAP contractors in March 1981, received a $14.9 million contract to participate in Phase I of the Army program, which called for the design of a military aircraft airframe made from advanced composite materials.

In October 1982, Bell was awarded a $21 million contract to manufacture and test three composite airframes over the next two years in Phase II of the project.

obituaries

HOWARD R. MOREIRA of Maintainability & Testability, Plant 35, died January 16 at the age of 53. He had been with the company since 1955 and resided at 31 Crocus Lane, Commack.

EDWARD J. FAIRCHILD of Details, Plant 3, died January 19 at the age of 66. He had been with the company since 1963 and resided at 28 McKinley Ave., Lindenhurst.

JULIUS ROGERS of Stockrooms, Plant 4, died January 14 at the age of 62. He had been with the company since 1963 and resided at 91 Twin Lane North, Wantagh.

SALVATORE RUSSO of Production Control-Parts Control, Plant 3, died January 17 at the age of 63. He had been with the company since 966; his address was P.O. Box 205, Bethpage.

RUDOLPH DIEL of Die Shop, Plant 2, died January 10 at the age of 56. He had been with the company since 1966 and resided at 75-17 Penelope Ave., Middle Village.

Carpools

Stony Brook/St. James/Smithtown to Bethpage: fourth member needed to join existing car pool, 7:30 a.m. to 4:30 p.m. T. Dalton, Ext. 1825 or 979-8337

Bayside, Queens to Bethpage: Riders with cars wanted to form car pool, 8:12 a.m. to 4:42 p.m. Call Beth, Ext. 5529

Holbrook/Vicinity to Bethpage, Plant 25: either join an existing car pool or form one, 8:12 a.m. start time. Anyone interested, call Henry Bennet, Ext. 3176

GRUMMAN plane news

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On the right TRAC

Rotodome update strengthens Hawkeye's vision

Fixed atop the fuselage of the E-2C Hawkeye, the 24-foot saucer-like rotodome is undoubtedly the airplane's most distinguishing feature. In fact, the Hawkeye's advanced airborne early warning and airborne intercept control (AEW/AIC) mission is made possible in large part because of the significant effectiveness of the rotodome system.

While the sight of the Hawkeye rotodome may seem commonplace by now, what is not outwardly apparent is that the rotodome has recently undergone significant modifications to its antenna elements. These modifications will give the E-2C flight crews a far greater tactical advantage in their missions and greatly enhance the entire system's effectiveness.

Improvements in the rotodome made as part of the Hawkeye's ongoing update development program have resulted in a more efficient radar capability with significantly reduced susceptibility to jamming. Dubbed TRAC-A for Total Radiation Aperture-Controlled Antenna, the rotodome's enclosed antenna elements have been modified to greatly reduce what is known as "sidelobe reflection."

According to Bob Higgins, E-2C TRAC-A Development program manager, "Sidelobes are patterns of extraneous radiation occurring as a by-product of normal antenna emission but originating in a lateral/oblique direction relative to the main radar beam."

What sidelobes do, essentially, is create data confusion that causes false alarms or "spurious target indications." This results from objects reflecting sidelobe radiation and appearing to be in the area in which the antenna is tracking.

As an example, Higgins notes that one of the most significant threat potentials today is the Soviet Tu-22M/Tu-26 Backfire bomber operating with electronic countermeasures (ECM) equipment aboard. "As a strategic bomber equipped with ECM, the Backfire has the self-contained capability to mask itself from airborne early warning systems through jamming while performing its offensive mission.

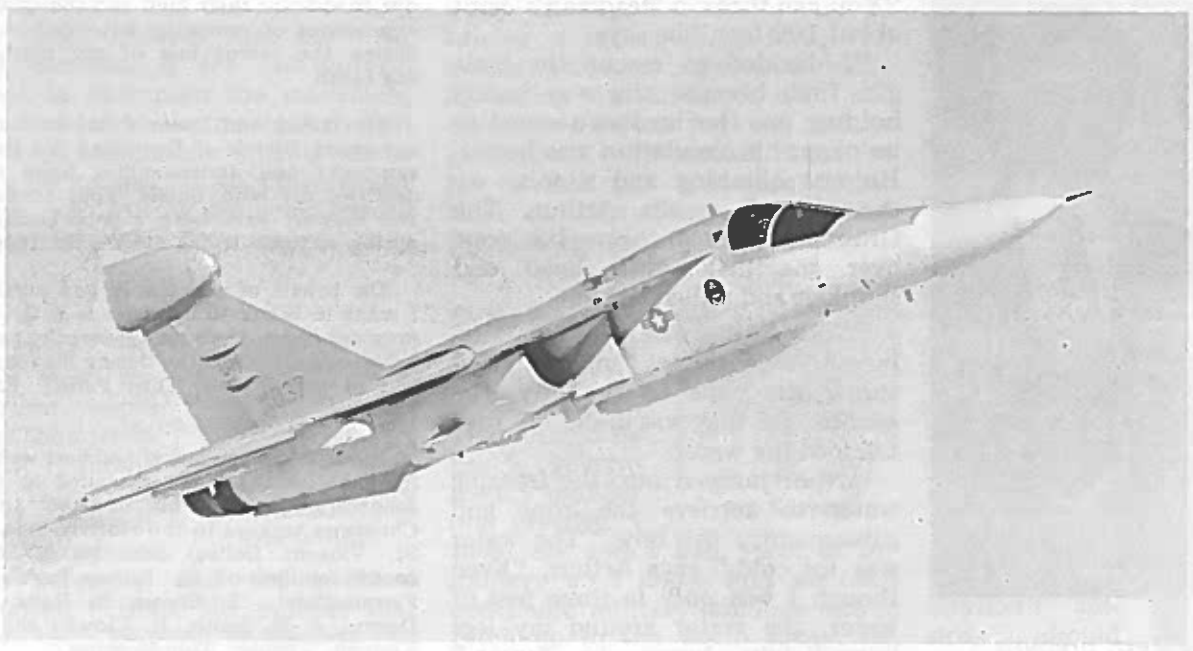
"The TRAC-A improvements will reduce the effectiveness of such threat aircraft due to reduced antenna sidelobes and improved radar and electronic counter-countermeasure capabilities."

By modifying the elements of the radar and identification friend or foe (IFF) antenna, both of which are sandwiched within the rotodome, Higgins explains that "the reduction in the sidelobes effectively channels otherwise wasted energy, either radiated or received, into the main beam."

The first of the new TRAC-A rotodomes went into service with the Navy in early 1983. To date six Hawkeyes equipped with the modified antenna rotodomes have been delivered to the Navy and are currently in various stages of operation. In addition, Higgins says current Navy plans call for retrofitting all operational E-2 Hawkeyes with the new TRAC-A rotodome, amounting to somewhere near 70 aircraft.

"In the constant EW (electronic warfare) battle, and particularly in the area of radar and communication jamming threats, the new TRAC-A rotodome antenna configuration significantly improves the overall EW capabilities of the E-2C Hawkeye system," says Higgins.

What's inside counts. *The E-2C's rotodome system recently underwent significant modifications to its antenna elements. (Photo by Fred Annette)*



Only the beginning. *NATO's first EF-111A arrived at RAF Upper Heyford, England, recently. Modified by Grumman, the EF-111A is assigned to the 20th Tactical Fighter Wing's 42nd Electronic Combat Squadron.*

NATO gets its first EF-111A

RAF Upper Heyford, England — NATO's first EF-111A, electronic warfare aircraft, arrived here on Friday, February 3.

Assigned to the 20th Tactical Fighter Wing's 42nd Electronic Combat Squadron, the EF-111A Raven is designed to provide electronic countermeasures support for tactical air forces.

The Grumman-modified aircraft can detect, sort and identify different enemy radars observing an attack force and make threat radars ineffective, thereby preventing interception of the attack forces by hostile air defenses.

The 42nd ECS, scheduled for full activation in 1985, will be the only squadron to have EF-111As in NATO.

people

New assignment

Paul Kanzler has been appointed director for Corporate Manufacturing Skills Training. He is responsible for the training required to ensure that Grumman's manufacturing skills result in product quality at competitive cost.

Kanzler's responsibilities include the establishment and allocation of manufacturing training budgets and training for critical skills as well as the introduction of new training curricula to address new manufacturing technologies.

A select vet

Grummanite George Weinstein has been named to New York State Lt. Governor Alfred DelBello's Veterans Advisory Committee.

A past state commander of the Jewish War Veterans, Weinstein is an ILS engineer on the A-6 program in Plant 40.

Alive at five

On Thursday, January 26, two children found themselves floundering in the freezing waters of the Pattersquash Creek in Mastic Beach. Their misfortune turned to good fortune — they had crashed through the thin ice right behind Grumman retiree Arthur Passmore's home.

"My wife and I were watching the five o'clock news on television," recalls Arthur. "Living on the water, we always hear children hollering for help. They do it for attention. But, I always step outside to check — just in case."

This time the children weren't "crying wolf". A nine-year-old girl and her brother, aged eight, had been trying to retrieve their dog who had wandered out on the thin ice. They had proceeded about 100 feet across the frozen creek when the ice gave way . . . about 10 feet from the bulkhead in back of Arthur's house.

"When I went outside, I saw the two kids in the water. The boy was trying to climb up an ice-covered piling about 18 feet out . . . his sister was clinging to the bottom of the piling and her head was barely above the water," remembers Arthur.

Local hero. *Grumman retiree Arthur Passmore saved the lives of two neighborhood children who had crashed through the thin ice of the Pattersquash Creek which runs behind his house in Mastic Beach.*

Before retiring from his Grumman job in Subcontracts at Great River Operations, he had served as a volunteer with the Suffolk County Sheriff's Saltwater Search and Rescue Team. "I do a lot of fishing from my boat and I always make sure that I keep my ropes up-to-date," states Arthur.

The Grumman retiree ran to his garage and grabbed a polypropylene rope that had a "deadman's" knot on one end. (A deadman's knot looks like a hangman's noose.) "You can throw a 'deadman's' knot about 100 feet," he says.

"I decided to rescue the little girl first because she was barely holding on. Her brother seemed to be okay; his circulation was better. He was climbing and slipping on the piling," recalls Arthur. The Grumman retiree threw the rope over the little girl's head and shoulder and pulled her in.

"The dock was slippery," remembers Arthur, "and when I threw the rope to the boy, the anchor end that was under my foot fell into the water."

Arthur jumped into the freezing water to retrieve the rope and subsequently the boy. "The water was ice cold," says Arthur. "Even though I was only in three feet of water, the water around my legs immediately began to freeze."

Arthur and his wife made the two youngsters run to the Passmore's backdoor "to get their circulation going. We called 911, because the children couldn't talk and we were afraid of hypothermia (subnormal temperature of the body.)"

While the rescue crew was on its way, the Passmores dried the children off with towels, wrapped them in blankets and bathrobes and stood them near the wood stove.

"It was a miracle," the children's mother told a *Newsday* reporter. "I'm very thankful that he was there to help them. I'm very lucky that they're here with me now."

The Passmores almost weren't home that fateful afternoon. "I was going to drive my wife to Montauk, but she wasn't feeling well and we decided to stay home.

"We're certainly glad we did," adds Arthur.

Flying high. *Dick Mazourek (L), director of Flight Test, presents E-2 flight hour plaques to: (L to R) Carl Litwin, a test engineer who's flown 1,000 hours in the Hawkeye; John Koszeghy, Flight Test manager with 2,000 flight hours; and John Hammerstrom, a pilot with 2,000 flight hours.*

Personals

I wish to thank all my friends and co-workers for their concern, cards, visits, and for wishing me a speedy recovery. It sure helped. Many thanks to all of you. **Viola M. Drinkwater**

My family and I would like to express our sincere thanks to all our friends and co-workers for their kindness, generosity, expressions of sympathy and support during the recent loss of my father John. We also wish to thank all those in Insurance and Benefits who handled matters in a most helpful and efficient manner. **Christopher Chenery**

My family and I wish to thank all our friends at Grumman for their prayers and thoughtfulness. It has been a privilege to have been part of the Grumman family for almost 20 years. **Eileen Morfin**

My family and I wish to express our deep appreciation to Grumman and to all our friends for their kind and thoughtful expressions of sympathy extended to us during the recent loss of my mother. **Joe Licari**

My family and I would like to thank our many friends at Grumman for their sympathy and understanding upon the death of my wife, Sheila. Your concern and support have been a great comfort during a most trying time. **Sy Linger**

On behalf of my family and myself, I want to thank all our friends at Grumman for their kindness, generosity, and expression of sympathy during the recent loss of my brother, Tony Parisi. **Fran Azzarello**

A sincere appreciation and best wishes for the New Year are extended to the following people who donated their Christmas turkeys to the Holy Name and St. Vincent DePaul Societies for the needy families of St. Kilians Parish in Farmingdale: S. Bryers, R. Reiss, E. Doiron, J. E. Smith, R. Clowka and J. Kiernan. Thanks. **Tom Brierton**

●

Note: Mail requests for "personals" to: M/S C14-05. Call Ext. 8999 for more information.

what do you think?

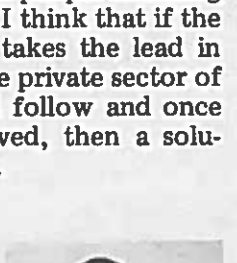
Defense. Foreign policy. Unemployment. These are just a few of the issues being debated during this election year. We asked Grummanites in Plant 105 for their opinions on what they'd like the top priority of the United States to be in the next four years. What do you think? (Photos by Fred Annette)

Patricia Troupes

I believe that the government should make hunger in the United States and in the world its first concern in the next four years. It's such a basic problem and the fact that it exists at all in today's world, with so many advances in technology and elsewhere, is a real crime. I think the Federal government should take the lead, through legislation and whatever other means it has, to solve the problem. If a solution for hunger in the world can be found, I feel confident that it will serve to bring humanity closer together. The need is there — a solution would profit the whole world. Hunger has to be attacked first right here in the U.S., but we have to worry about all the other people suffering in the world too. I think that if the U.S. government takes the lead in this fight, then the private sector of the economy will follow and once everyone is involved, then a solution can be found.

Ed Lukoski

I think the administration should be working towards total disarmament throughout the world. If the incredible resources that are wasted on weapons spending today were channeled into other areas, many of the world's problems could be easily solved. In fact, if all those resources were turned to any other endeavor at all it would undoubtedly benefit mankind dramatically. I realize though that as things stand in the world today we have to be realistic and defend ourselves. Defense is a real concern. But that makes it all the more obvious that our only real recourse is for our government to champion the movement for worldwide disarmament so that all those resources now being wasted can be redirected to constructive areas — to solving problems instead of creating them for ourselves.



Bonnie Ryan

I think the two most important issues that the government should concentrate on in the immediate future are the economy and the national defense. I think the policies that have been adopted in the last few years have done well and should be continued and strengthened. I'm happy with the way the economy has turned around and we seem to be headed in the right direction now. I don't believe the government should be taking care of everyone. I think there should be more emphasis on the responsibilities of the private sector. That's how our system is really supposed to work. One area that the government should control and concentrate on is our national defense. The next administration should make keeping our defense strong a top priority. As far as all our other problems go, I think we should concentrate on taking care of our own country and our own problems first, and then worry about the rest of the world.

Phil Cohen

I think the government's priorities should be to concentrate on remaining defensively strong. Personally, I don't feel that jumping on the nuclear disarmament bandwagon can solve anything today. In fact there may not be any solution to the problems that we face today in regards to nuclear weapons. Any arms limitation by the U.S. is pointless considering the attitudes and history of the Soviet Union. Other than that, I think the government needs to limit our national debt as a top priority. I think we may be solving a lot of short term economic problems right now while increasing our national debt and creating disaster for our future generations. We should learn to live within our economic limitations and curtail expenditures that the country simply can not afford.

Bob Scherpich

Defense spending has to be stepped up. No doubt about it. That should be the government's number one priority. I spent six and a half years in the military so I know that we need continued military buildups just to catch up in the world today. Because of previous administrations, the military did not get the necessary money it needed to keep up with everyone else. We've got to push defense spending at least for a couple of years, if only to catch up with our adversaries in the world — mainly the Russians. But I don't think the emphasis should be on nuclear weapons — there are already too many nuclear weapons in the world. What the military needs is better basic equipment. Better planes, better guns, vehicles — the nuts and bolts of the military. After that, I think the government should step up its efforts to find and develop alternative energy sources — other than nuclear. Nuclear energy is too dangerous and too dirty. What do we do with all the wastes years from now? The government should concentrate on other areas, such as solar energy. They should take the lead in such research.

Robin Levy

The top priority should be care for senior citizens. The government should provide a better means for financing nursing homes. Possibly half-way houses for those older people who are capable of taking care of themselves to some degree, with nurses and doctors available. They could use volunteer workers in some capacities in senior citizen care. Perhaps as an option to registering for the draft, people could work in some senior citizen programs. After that, we have to lower taxes because people need to feel they have that little extra bit of money that they can spend. Without that extra money, people can't spend to keep storekeepers in business and the money won't trickle down through the economy like it should. Something also has to be done about health care costs for all citizens. Those costs are outrageous right now and it's gotten to the point where I think the government should get involved in finding a solution to the problem.

Roy Mangelli

First of all, the next administration's priority should undoubtedly be to reduce the federal budget deficit to some reasonable level because it's almost getting out of sight now. To accomplish that, though, I think they might well have to cut the defense budget. Even though I work for a defense contractor, I think such cuts might be necessary to get control of the deficits. Secondly, the government must address the problem of unemployment. We've got to get people back to work in order to be more productive and competitive in the world marketplace. The government also has to work on the problems we are having with foreign competition. It's distressing to go into a department store and not be able to find a shirt made in the United States. The problem is obvious to anyone who takes a look at the cars on the road — just about every other one is made overseas somewhere. All these problems are interrelated, of course. If we can cut into the unemployment then there will be more people paying taxes and that's one way to begin lowering the deficits. Economically, it is all connected and economics is where the next administration's priorities should be.

Jeanne Martines

The government should make its first priority a major expenditure for a continued defense buildup. I think they should fund the MX missile, the Tridents, the new laser defense systems — all the defense systems. Defense should be the country's first concern specifically in light of the mobilization of the U.S.S.R. to what is essentially a wartime production economy over there. The escalation of the cold war has made it imperative that we are strong enough to protect ourselves and our way of life, and that everyone — especially the U.S.S.R. — recognizes that. The next priority should be the strengthening of our ties to the NATO alliance. We really should be trying to get the country to move away from its isolationist tendencies. In addition, we should take the necessary steps to increase our trade with third world countries to improve our relationships with them. We have the capacity to export more and they really need more of our products. It may mean we will have to renegotiate some of their foreign debts with us, though.

Next edition: February 24

President gives go-ahead for manned Space Station

(Continued from page 1)

tion, Grummanites are now at the Cape and Vandenberg Air Force Base, working with Lockheed on the Shuttle Processing Contract."

NASA has advocated a manned Space Station since the early days of the space program. Grumman's involvement dates back to the 1970s. Most recently, it was one of eight contractors that submitted conceptual Space Station designs last April under a $787,500 NASA Study Contract.

The Space Station design developed by Grumman would accommodate three or four people at the outset and provide for continual growth. Just getting the initial-phase Station up into orbit would require three shuttle launches, since the payload would be so big. The Space Station would orbit the Earth at an altitude of 200 miles.

The Grumman concept is called the "Power Tower" because all the various modules (habitat, lab, logistics, transport harbor, service/assembly, observatory, industrial park, resources, as well as the solar panels) are suspended in orbit on a long, vertical structure that resembles a radio transmission tower. As explained by Dick Kline, director, Shuttle Applications/Space Station Programs, the initial Space Station could be enlarged significantly — everything down to the solar panels is modular; new components need only be added on.

"We're not selling a final concept, but a Space Station that would have future growth built into it," Kline comments.

Another important feature of the design is that the Power Tower can fold to bring modules on the rim of the station into the service module for maintenance or repair. Those operations could be performed using the Grumman-built Manipulator Foot Restraint (MFR) and the Handling and Positioning Aid. The former was previously dubbed the Grumman "Cherry Picker," and is used to transport a person away from the spacecraft to perform repair work on satellites. The latter, a prototype of which was recently built by the company under a NASA contract, basically functions as a grasping tool.

NASA estimates the Space Station will cost in the neighborhood of $8 billion, in constant '84 dollars, in its initial stage. This includes requirements for supporting a larger initial crew (six to eight), plus the deployment of a free-flying platform, which would orbit in tandem with the Space Station and would either take astrophysic measurements of the universe or process high-purity materials. A second platform would orbit on a polar path and provide scientific photographs of the Earth.

Many benefits

Kline terms the $8 billion price tag, as well as the $17-20 billion the Space Station is expected to cost in its evolutionary stages, "not unreasonable figures," but adds those costs are sizably less than the Shuttle's. In his opinion, President Reagan took his initiative none too soon.

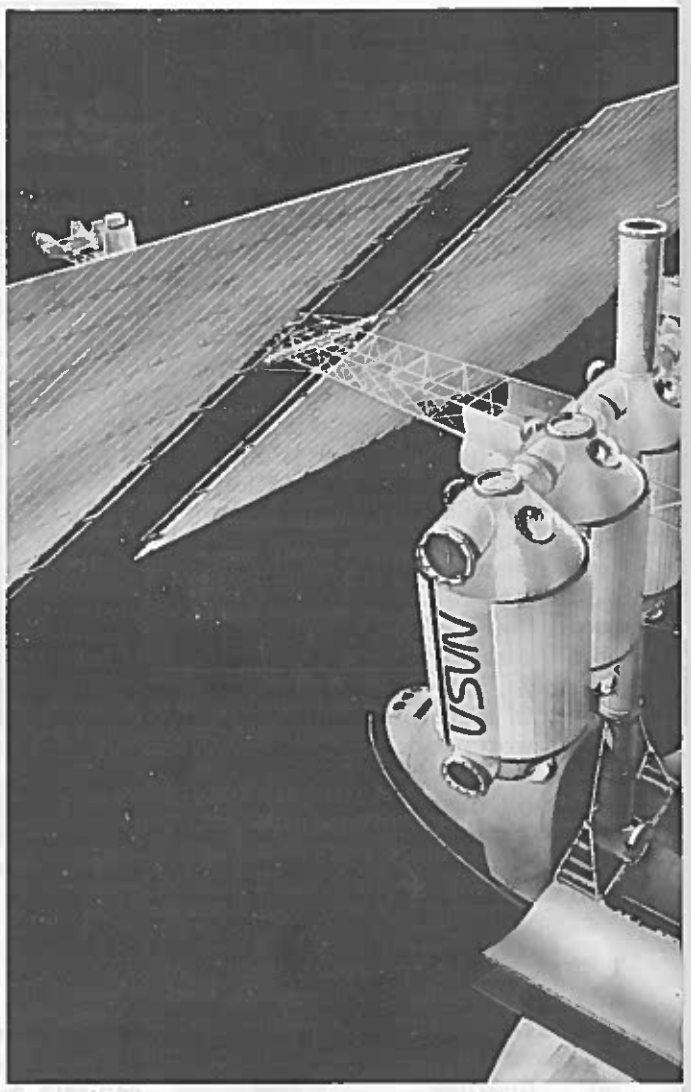
"It bothers me as an American to see us squandering our lead in the manned space program by not moving as rapidly as we should have," he asserts. "The Russians, with Soyuz and Salyut, have done a commendable job in space, something of which they should justifiably be proud. With the combination of the Shuttle and the Space Station, I believe we can recover the initiative."

The manned Space Station does have its critics, who argue that its mission would be better accomplished by unmanned spacecraft bearing cameras and telescopes. Kline responds that there is a valid role for both manned and unmanned spacecraft, and that the Space Station is "integral to the plan for utilizing space in the interests of the U.S.

"The Shuttle cannot do the job of a permanent facility," he points out. "Also, the Space Station enables the creation of a national test facility in orbit. That's an exciting prospect that you'll never be able to accomplish on the Space Shuttle."

This advantage will be most readily apparent to companies and institutions involved in space research, but Kline expects others to show interest, too. For one thing, like all spacecraft, the Space Station will produce enough solar power to meet its operating requirements. But there will be enough left over to permit commercial ventures to be set up. Already, companies making a variety of products — from semiconductors to pharmaceuticals — are conducting experiments on the Shuttle. They and others could be lured to the Space Station by the prospect of cheap, plentiful energy.

Another benefit: launching on demand. The launch pad at the Space Station would be operational all the time — no "rain dates." Such a launch site would also enable the retrieval and reuse of spacecraft third stages — they're now "thrown away" and left in orbit.



Simple addition. *This artists's drawing shows the G like in an advanced stage. Expansion would be done*

In response to the argument that unmanned craft provide the same capabilities as manned spacecraft for space observation, Kline counters that people provide far greater experimental flexibility. It's been demonstrated that cameras on manned telescopes have spotted important activity on the sun, for example, activity the unmanned telescope would miss.

A big undertaking

There is a strong possibility that there will be three or more major contractors involved in designing and building the Space Station.

"Since it's so big and will evolve so much, it really makes sense for NASA to have several contractors involved," Kline says. "It's really very different from a one-shot spacecraft. Here, you've got a Space Station that would be designed to grow and evolve. In all likelihood, several separate companies would provide portions of the Space Station to NASA."

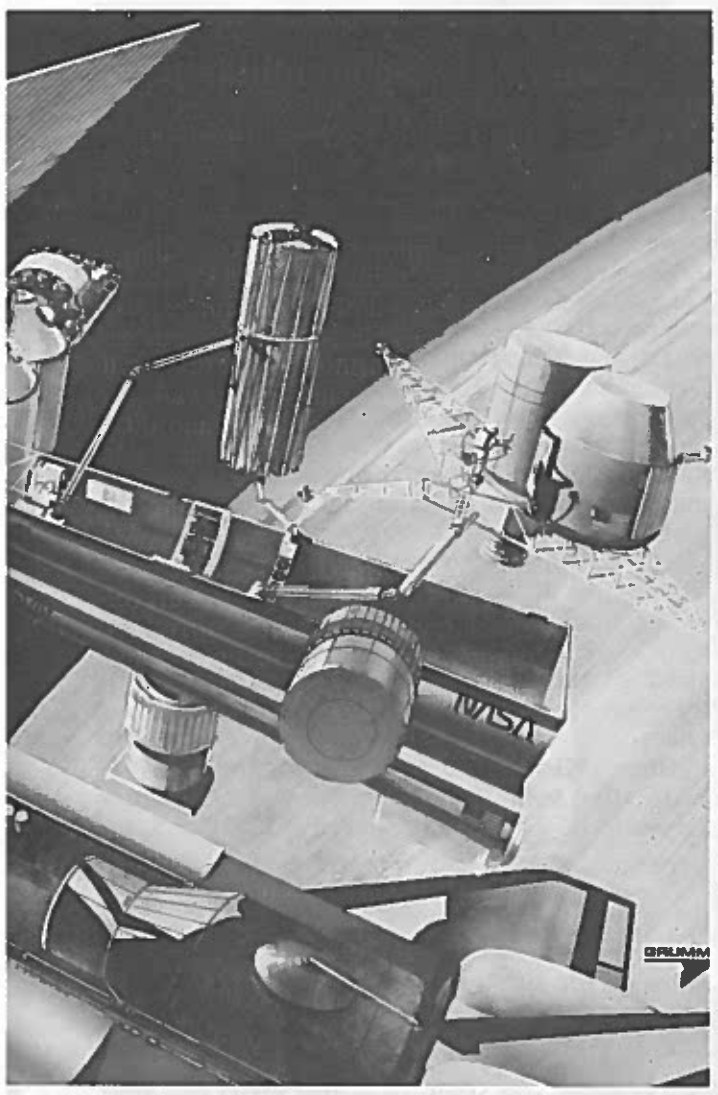
Kline pauses. "Of course, that's a decision for NASA to make," he adds.

When the eight study contractors submitted concepts last April, the news media reported there to be striking similarities. Kline says that given NASA's requirements, that wasn't surprising. One of Grumman's "plusses," he says, is that its design is gravity-gradient stabilized.

"With its very long length, it is able to maintain its attitude much more easily than if its configuration were more chunky or spherical," he explains. "This keeps it in a fixed position in orbit."

About the cover

The Grumman-conceived Space Station, shown in an artist's rendering, has been dubbed the "Power Tower." Components — including its solar energy cells — would be attached to a structure resembling a radio tower.



'mman concept of what the Space Station would look y simply adding more modules.

Depending on what NASA's Fiscal Year 1985 budget is, which will have to be approved by Congress, and depending on how rapidly the agency moves to implement the space station initiative, there is some likelihood that companies will begin competing for important Space Station Systems Definition contracts within this calendar year (F.Y. 1985 begins in October of '84).

Contracts for finally designing and building the Station hardware are still a number of years away.

"I feel NASA will want to do a thorough job of defining the hardware prior to the development and construction contracts," Kline notes. "This is the right approach, and it will help keep development costs from getting out of hand."

The time is right

Kline agrees with President Reagan that the Space Station could become a symbol of international goodwill.

"Just as with the Shuttle there's the opportunity for international cooperation, I think a properly defined approach involving the U.S. as well as our international friends could give us added capability for fewer taxpayer dollars, as well as promote healthy international relationships.

"I personally think the Space Station is right for this country, and I think the people should galvanize their support for it," Kline contends. "The benefits of it have been demonstrated now that the Shuttle has successfully flown. The time is past due for this very important program."

A sneak peak at the future

The PDOC Wood Shop's version of what a Space Station Control Module would look like is referred to in technical terms as a soft mock-up. "Soft" means the design is far from complete — it'll be further refined and changed for the next few years, and the soft mock-up will provide the Grumman team with a three-dimensional development tool.

The circular structure measures about 15 feet in diameter and stands eight feet tall. There's a simulated door on the ceiling to represent the docking port — where shuttle passengers would climb into the control module. On the walls are bright panels suggesting the array of touch-sensitive, flat-panel computer screens that would provide constant information on space-station operations.

At the front, a mock window gives the illusion of looking out into space. What's really seen is a videotape projected onto a screen. The tape was produced by Grumman's own Audio/Visual Services studio using "talent" from the Model Shop. Models of astronauts are depicted repairing a model satellite with the aid of the Grumman Manipulator Foot Restraint ("cherry picker") and Handling and Positioning Aid. In actuality, the movement was accomplished with wires, but it looks real.

Curiously, there are no chairs in the mock-up — in a virtually gravity-free environment, they wouldn't be necessary.

"The mockup represents a control module that would accommodate three or four people initially," says Al Nathan, manager, Technology Advancement-Space Programs. "It could be somewhat upgraded to accommodate seven or eight."

"The Space Station would have more capabilities than anything that's been in orbit before, including Skylab and the Russians' Salyut," adds Ron McCaffrey, manager, Space Station Systems Study.

The mock-up was unveiled in mid-January and in the weeks that followed, it has hosted visitors from New York metropolitan-area newpapers and television-news programs. It was built in an astonishing two weeks' time — translating into long work days and much overtime for the PDOC crew and the graphic-arts photographic people. And since the Grumman Space Station design is still subject to many revisions, the PDOC crew will stay busy rearranging displays and components in the mock-up. It should be exciting to watch.

Awesome. *Ronald Arubes, Stan Coryell, John Hussey, and Alan Brown check out some of the innovative visual techniques utilized by the mock-up to depict an actual Space Station Control Module.*

A labor of love

Retirees restore old Grumman classics

"We turn the clock back 20 or 30 years to a time when we all came to work with smiles on our faces, and we still do," says Grumman retiree August Ripp. What August and a group of 31 other Grumman retirees are smiling about is their participation in the Grumman retiree airplane restoration team.

For over 10 years now, working without punching any time-clocks and only themselves as bosses, the group of retirees have turned their job skills, acquired over years of building Grumman aircraft, into a useful hobby. The team is already responsible for such restorations as the Grumman F11F Tiger now on display on the deck of the U.S.S. Intrepid Air and Sea Museum docked in New York City and the F4F Wildcat currently displayed in the Smithsonian Institute's Air and Space Museum in Washington, D.C.

Jake Bussolini, director of Business Operations for Grumman Aerospace and program manager for the retiree group handles the interfacing of the group and the ongoing work at Grumman. "When I came to Grumman 23 years ago, I heard about the something special that went along with working for Grumman: the pride, the teamwork, and the come-from-behind spirit. When I started working with the retiree group — the same people who helped carve that company image — I realized that suddenly I was in the middle of that spirit. I thought, if only I could capture and preserve that special spirit and find a way to transfuse it into the younger generation of Grummanites. Well that's what this team is all about. They personify everything Grumman stands for," says Jake.

Close to a century of experience

Organized over 10 years ago out of the Grumman Retiree's Club, the restoration team has grown to include some 32 members who together they represent a total of 960 man-years with Grumman or an average of 30 years work experience per man.

In addition to Steve Kiss and Joe Schneider, present Grumman employees and technical coordinators for the retiree team acting as assistants to Jake Bussolini, director of Business Operations, and program manager for the group, the current team consists of the following retirees:

Joseph Accolla, Joseph Bosch, George Burkhardt, Frank Bustamente, James DeCarmine, Nicholas Dicce, John Eigenbrodt, Edward Erichsen, Otto Felser, Anthony Ferraioli, Robert Giles, Milton Guttenberger, Charles Hermann, Walter Jankowski, Ellwin Luerssen, Fred Meiners, Joseph Mele, John Milli, John Mollico, Joseph Oliver, George Petrilak, Joseph Riccobono, August Ripp, Arthur Romeo, George Smith, Sidney Steele, Charles Staffeldt, Joseph Stryjewski, Walter Szatkowski, William Wange, John Wichmann, and John Zockoff.

Art Romeo, director of the retiree team, says "Dedication and enthusiasm characterize this group of guys more than anything. Everyone contributes their skills and time to restore these old planes in order to leave something for posterity — to leave our mark of pride in our workmanship — and to repay the Grumman company for the good years it gave to all of us."

Joe Oliver, a Grumman field representative for some 30 years and one of the original members of the retiree restoration team says, "For an oldtimer like myself, working on these planes gives me a chance to look back with pride on the work we did building the planes the first time. It's very rewarding and I get a real sense of satisfaction in seeing the parts that we designed and built years ago and knowing that they have worked and stood up to time long enough now to have become classics worthy of display in places like the Smithsonian and on the Intrepid."

'The only blueprints we have are in our heads . . . .'

The retiree group meets every Tuesday from 9:30 in the morning until 2:30 in the afternoon but members often stay much longer and come in several times a week and even weekends in order to get a project completed on time. Retiree George Smith recalls when the Franklin Institute in Philadelphia had scheduled the opening of its Science Park in conjunction with the 10th anniversary of the first lunar landing.

"We had worked on the LM (Lunar Module) restoration for more than two years and we still weren't ready for the show yet. Art (Romeo) met with Jake and told him that we had done our best but that it was impossible to have the LM ready on time. Well, Jake met with the team and reminded us that we still had three weeks to go and we should give it our best shot. The team's pride was aroused and we responded by working a seven-day week and the LM was delivered on time. We were even doing the final touch-ups in 98° heat while the opening day crowds were coming into the show, but we made it."

A classic match

Currently the retiree team is working on two "classic" Grumman planes simultaneously in its cramped but efficient working quarters in a corner of Warehouse 6: an F6F-5K Hellcat and an F9F-6 Cougar, both scheduled to be delivered to the Smithsonian Institute sometime next year. According to George Petrilak, one of several team leaders within the retiree group, both the Hellcat and the Cougar will eventually become part of a permanent Smithsonian exhibit of Grumman airplanes, set to open sometime in 1985. "I personally worked on the Cougars so I can remember a lot of what we did back then. In our restoration work we don't use any blueprints since the planes aren't meant to fly again. The only blueprints we have are in our heads — what we remember."

Both the Hellcat and the Cougar will require extensive work before they are ready for display. The Cougar will have its landing gear and engine mounts reworked to original specs of the F9F-6 configuration. Former test pilot and Grumman retiree Fred Rawley visited the retiree restoration team recently. He was surprised to recognize the Cougar as the very airplane that he had piloted in test flights many years ago, and the very first of its model to undergo flight testing.

"That's what is so exciting about this work," says retiree John Wichmann, "the memories and the comraderie of working together with a great bunch of guys. This program reflects the true spirit of the real old Grumman family. Not to mention giving us a chance to get away from our wives and mothers-in-law once in a while."

Steve Kiss, technical coordinator for the restoration team and deputy director of Business Operations, points out that the combined experience of the retiree group makes them "unique."

"For example," he says, "to restore the F6F Hellcat to its original condition and specifications as the Smithsonian requires, means covering the control surfaces of the wings and tail section with doped fabric. We not only had to find the right material — 100 percent cotton fabric, the same as was used when this plane was first constructed — but we need people who remember how to work with this stuff. This kind of fabric-doping work hasn't been done in some time and I don't think there are many people outside of this group who could do the job the right way these days."

Besides the work on the Cougar and Hellcat, the retiree team is also currently putting the finishing touches on a circa 1959-60 F11F-1 Tiger in the Plant 4 hangar. The plane, repainted from a Blue Angel design to its original squadron colors, will join the other F11F Tiger restored by the Grumman retiree team on the deck of the Intrepid. Both planes will be mounted on pedestals to recreate the double launching technique that they once performed regularly from the carrier's flight deck in their earlier lives.

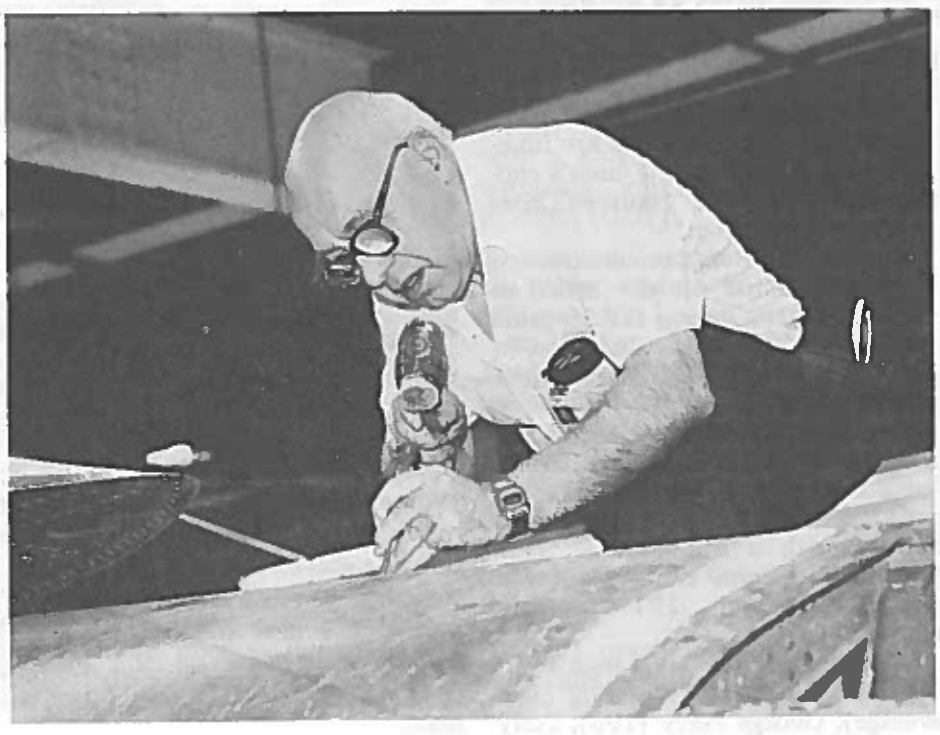
'The retirees breathe life into these old planes . . . .'

Authentic effort

"What the displays both on the Intrepid and in the Smithsonian museum try to create is a feeling of authenticity," says retiree Joe Riccobono. "The work of the retiree plane restoration group is what makes that authenticity possible," he adds.

Romeo sums up the program saying, "The retirees breathe life into these old planes with their work and their memories and in doing so instill a sense of pride that is what we believe Grumman is all about. We love airplanes and we love Grumman. The company gave to us for many years and now we want to give a little back."

No timeclocks to punch. *The Grumman Restoration team, made up of 32 retirees, is now busy at work on a number of old Grumman planes. Team members shown on this page are (clockwise, starting with top photo): John Melli, Milton Guttenberger, George Smith and August Ripp, Tony Ferraioli, and John Mollico. (Photos by Jim Prestinari)*



Events for Black History Month unveiled

February 1984 marks the twelfth annual celebration of Black History Month across the U.S. This year Grumman Corporation and the Naval Plant Representatives Office have joined to sponsor a lecture series to commemorate black achievement and discuss opportunities available to blacks today.

The theme for the lectures will be the "Black Inventor." On Wednesday, February 15, at 2 p.m., John Dove, the holder of six patents and a pioneer in laser and electron beam data storage and retrieval systems, will be presenting a talk on "Laser Technology and Information Processing" in the Plant 35 cafeteria. Dove is currently traveling as a "citizen ambassador" under the auspices of the White House and the State Department.

The keynote speaker for the Black History Month lecture series will be NASA astronaut Charles Bolden Jr. Bolden, a lieutenant colonel in the U.S. Marine Corps, will speak at the Black History Month Luncheon at the Milleridge Cottage in Jericho on February 17. He will discuss his life as an astronaut and experiences as a pilot in the Marines.

Reservations for the luncheon can be made by calling Paulette Whitaker, Ext. (111) 7585. Tickets are $12 each.

Guest speaker. *NASA astronaut Charles Bolden Jr. will be the keynote speaker at the Black History Month Luncheon on February 17.*

Where, when to give blood

Here's a rundown of the dates, times, and locations for blood drives in the months of February and March. Subsequent drives will be announced at a later date. For more information, call Ext. 8920.

Date	Location	Time
Feb. 15, 16 *(day)*	Pl. 43	8:15 a.m. — 1:45 p.m.
Feb. 16 *(night)*	Pl. 43	4:45 p.m. — 8:45 p.m.
March 13, 14, 15	Woodbury — various plants (mobile unit)	8:45 a.m. — 2:15 p.m.
March 21, 22 *(day)*	Pl. 2	8:15 a.m. — 1:45 p.m.
March 22 *(night)*	Pl. 2	4:45 p.m. — 8:45 p.m.

Well done. *Blood Program co-managers in 1983 Vince Holder (2nd L) and Joe Frisino (2nd R) are flanked by the Program's retiree volunteers: (L to R) Bill Jeffries, Holder, Helene Stone, Catherine Schlecten, Mary Kunkel, Frisino, and Al Kunkel.*

service milestones

The following people celebrate service anniversaries this month. The next issue will feature additional anniversarians.

20

James N. Bennett Jr., Safety & Maint. (1)
Carmen DeCianni, Tanks & Ducts (2)
August F. Nigl, Prop. Test (2)
Dorothy A. Buckley, Food Serv. (2)
Gerald T. Halpern, Prog. Cont. (2)
Theodore J. Stoetzer, Conv. Mach. (3)
Robert F. Helfst, Mach. Ops. Parts Ctl. (3)
Joseph G. Sargent, Flt. Avionics (4)
John Mica, Assy. (5)
Hermon O. Lee, Avionics Instl. (5)
Anne P. Mancusi, Food Serv. (5)
Hoshen R. Lu, Struct. Test. Staff (5)
James A. Tedesco, Ops. Anal. (5)
Gennady N. Kozyreff, Ops. Anal. (5)
James H. Meagher, Q.C. Mgmt. & Admin. (6)
William G. Shannon, Prog. Coordination (6)
Richard Andre, Comp. Equip/Soft. PRD SP (7)
Louis R. Cozza, Mfg. Prog. Mgt. (9)
Kenneth A. Bedell, B/P Whse. (21)
Remo L. DiTieri, ILS Prog. Mgt. (25)
Jennie DellaPietra, Gen. Comm. (30)
Wilbur A. Lockman, Tech. Req'mt. (30)
Vivian M. Agnoli, Food Serv. (30)
Jennie G. Ruggiero, Food Serv. (30)
Nancy L. Winding, Prog. Cont. (30)
Florence A. DelSolo, ILS Sect. Serv. (35)
Agnes Sabatino, Food Serv. (35)
Horace McCullough, Food Serv. (35)
Francis J. Delaney, Fluid Sys. (35)
Paul K. Heim, Pwr. Plt. Des. (40)
Alfred L. Cimino, Sys. Dev. & Integ. Proj. Mgmt. (40)
Albert M. Gurkewitz, Prog. Mgmt. — Pave Mover (40)
Randolph F. Soper, Q.C. Tech. Serv. (43)
Joseph J. Steuerwalt, Q.C. Insp. (66)
Paul Michinski, Proto/Det. Parts (77)
Vester Thomas, Mfg. Est./Budgets (77)
James R. Wallace II, Plan. Cont. & Budgets (77)
Stanley Roberts, ILS Digital TPS Eng. (106)
Charles R. Howe, Paymaster (111)
Arthur J. Duvall, Site Mgmt. (268)

15

Mario Conforti, Assy. Methods (1)
Joseph A. LaMarco, Assy. Methods (1)
Doris M. DeLisi, ILS Admin. (1)
Roy F. Fiore, ILS Resource Cont. (1)
Gerard C. Miller, Ld. Gear Carrier Suit AB/ARM (1)
Frank Szabo, Router & Shear (2)
Joseph Miley, Small Parts Fab. (2)
Arthur A. Lindenmeyer, Controls (2)
Thomas Szwejkowski, Stockroom (2)
Joseph Solomon, Mech. Process Eng. (2)
Lorraine C. Babyak, Mach. Oper. — Parts Ctl. (3)
Charles J. Dziomba Jr., Inst. Test (5)
Peter A. Schumacher, Pres. Serv. (5)
Ronald P. Roberts, Pres. Serv. (5)
Howard W. Applegate, Aero Test (5)
Robert W. Reilly, Software Supt. (5)
John Johnson, Tech. Pres. Serv. (5)
Dorothy Malone, Sect. Serv. — Other Plts. (5)
Cleveland E. Briggs, EF-111 Sys. Inst. & Test Data (6)
Felix J. Dreyfus, Maint. Rearr. (12)
Raymond L. Manniello, ILS Tech. Writing (15)
Edward J. Summers, ILS Tech. Writing (15)
Gary B. Lohr, Property Disp. (17)
Lewis Crum Jr., Plt. Protection (18)
Burton M. Roberts, ILS Oper. Supt. (25)
Gerald A. Brunstrom, ILS Elect. Pkg. (25)
Joseph J. Drvostep Jr., Subsys. Rel. (25)
Kathleen J. Mitchell, Employment (28)
Robert J. Smith, Employment (28)
Madge E. Slabowski, Medical (28)
John C. James, Inv. Cont. (30)
Carl C. Drewry Jr., P.F. & P Mgmt. & Staff (30)
Nibbo Prezioso, Supplier Cont. (30)
Elaine C. Borsella, Software Anal. (31)
Peter K. Hurrle, ILS RF/Servo/Elect. TPS Eng. (35)
Howard Mendelsohn, ILS Equip. Des. Eng. (35)
Angelina L. Lucas, Research Mgmt. & Staff (35)
Doris E. Koshers, Standards (35)
Recella McNeil, Career Ed. & Dev. (39)
Rose P. Bruno, PPO-A6 & EW Prog. (40)
Joseph F. Nagle, PPO-A6 & EW Prog. (40)
Joseph Bren, ILS Mech. Equip. Eng. (40)
Frederick J. Howard, ILS Subsys. Eng. (40)
Andrew J. Smith, Food Serv. (40)
Murray Liss, Digital Tech. (40)
Berrie A. Ivory, Sec. Serv. (40)
Milton I. Cohen, Prog. Plan. Cntrl. & Budg. (40)
Sheldon Schwartz, Resources (43)
June C. Pine, Elect. Box & Pan Fab. — Temp. (44)
Harold E. Schaeffer, Machine Shop (56)
Albert Landi Jr., Manuf. (77)
Douglas R. McDowell, Tech. Ops. (77)
Richard G. Schaefer, Mach./Tool Shop (77)
Jimmie L. Gaskin, E-2C Wings/F14 Weapons (77)
Calvin I. Smith, F14 Aft. Sect. Assy. (77)
Michael W. Regan, Elec. Sub. Assy. (77)
Howard R. Schneider, Info. Proc. (105)
Eddie E. Phillips, Site Mgmt. — Other Plts. (201)
Vern B. Wu, Software Supt. (272)
Irwin E. Freireich, Sub. Cont. Serv. (284)
James A. Morand, Integration (289)

calendar

AIAA: Wed., Feb. 15, Antun's, Hicksville, 5:30 p.m. Dinner meeting "Technology Transfer; African Challenge." Guest speaker will be O. Williams, V.P., Grumman International, guests welcome. S. Winkler, Ext. 4279.

American Society of Mechanical Engineers: Wed., Feb. 22, Milleridge Inn, Jericho, 6 p.m."Understanding the U.S. Congress." Guest speaker will be Don Imgram, Grumman Congressional Fellow, guests welcome. A. Cacioppo, (516) 273-6600.

ASHRAE: Tues., Feb. 14, Linden Tree, Bethpage, 6 p.m. Technical/Social, guests welcome. A. Rubenstein, Ext. 3679.

Coin Club — Bethpage: Wed., Feb. 22, Plant 25, vendor conference room, 12:05 p.m. Informal lunchtime meeting. Ken Hale, Ext. 1825.

Computer Club: 1st Mon. of every month, Recreation Bldg., 7 p.m. Computer demo/lectures, beginners to advanced programming, guests welcome. J. Hayne, Ext. 4945/P. Frumkin, Ext. 5134.

French Club: Tues., Feb. 14, 108 North Windhorst Ave., Bethpage, 5:30 p.m. Open to all Grummanites and their friends. Louis Kaufman, Ext. 2323/ John Selby, Ext. 6608.

Grumman Disabled American Veterans Club: Wed., Feb. 15, Plant 3 cafeteria, 4 p.m. All disabled American veterans welcome. O. Lewis, Ext. 4476.

Grumman Family Campers: 1st Sun. of every month Recreation Bldg., 5 p.m. A. Hanes, Ext. 3551.

Grumman Motorcycle Club: Wed., Feb. 15, Recreation Bldg., 5:30 p.m. Election of officers. J. Mehnert, Ext. 6163.

Grumman Ski Club: Tues., Feb. 21, McKeon's, Hicksville, 8:30 p.m. Snow skiing/social, guests welcome. Art Garmendia, Ext. 7819/8910.

National Contract Management Association: Tues. Feb. 21, Musicaro's, Melville, 4-6 p.m. workshop, 7 p.m. dinner and speaker. Guests welcome Bill Stanton, Ext. 3167.

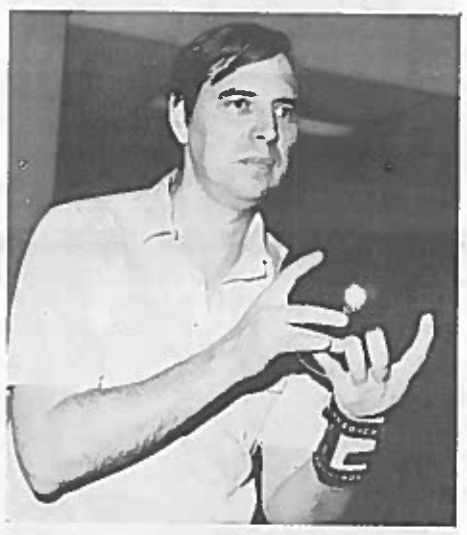
Society of Manufacturing Engineers: Mon., Feb. 13, Fairchild-Republic Co., Farmingdale, 7:30 p.m. Local Chapter 88, technical meeting on "Ultra-Sonic Welding". Guest speaker will be Theodore A. Renshaw. Guests welcome. V. Pavlik, Ext. 5253.

retirees

On behalf of our fellow workers, PLANE NEWS salutes the following men for their contributions to the company and wishes them well in their retirement. Those who are retiring in February are:

William J. Piat (5), Thomas F. Flynn (3), Leonard R. Luke (1), August F. Nigl (2), Stefano Malesky (2), George W. Hemme (4), Bradford J. Griffin (5), Edward J. Callaghan (3), Nicholas J. Tallarico (2), Thomas J. Healy (28), Nicholas B. Dellolmo (111), Raymond F. Allen (3), Viggo Pedersen (2), Albert Martinez (3), Oscar McDowell (40), Boleslaus S. Chojnowski (2), John J. Dickerman (14), Rheinhold Szeglin (25), and Eugene A. Rossi (4)

Varsity bowling teams are set



Top roller. *Al Kirillin took the number one spot in the men's bowling roll-offs with an impressive 219 average in the 20 game series. This will be Kirillin's first year on the Grumman varsity bowling team.*

The rosters for the 1984 Grumman varsity bowling teams are finalized. Al Kirillin is the men's captain this year, while Maureen Croes will lead the women.

Kirillin — a long time member of the varsity tennis squad — rolled an average of 219 during the 20-game varsity roll-off trials. Included in his 4,389 total pinfall were games of 277 and 278.

Ed Gabriel finished second in the roll-offs — 234 pins behind Kirillin for a total of 4,155 and a 207 average. Third place honors went to Ed Hilbert with a 198 average; Jack Nielsen and John Ebron followed with 198 and 197 averages respectively.

Also making the 1984 men's varsity squad were: Eddy Eng (195 average); George Perry (195); Tony Napolitano (194); Niel Napolitano (194); Bob Kohlhoff (193); and Cecil Hollar (191).

Croes led the way

Croes finished the women's 12-game trials 184 pins ahead of the pack. Her total pinfall was 2,220 for a 185 average. Only 55 pins separated the second the 11th place finishers.

Those women who will represent Grumman on the L.I. Industrial League circuit this season are:

Marie Buttacavoli (168 average); Kathy Hasselbach (168); Alberta Sawicki (167); Lucille Buttacavoli (166); Arleen Schwemmer (165); Evelyn Gerdon (164); Hellen Oakes (164); Grace Chase (163); Rita Mathia (163); and Olga LaBarbera (163).

Women's captain. *Maureen Croes rolled to first place in the women's bowling roll-offs with a 185 average over 12 games. Maureen bowled four games over the 200 mark in earning her place on this year's Grumman Women's varsity bowling team.*

scorecard

Magical bus tours

Grumman Recreation has an assortment of bus excursions planned for 1984. Here's a quick rundown of a few of these tours:

Washington, D.C. — Leave Friday, April 27, 9 a.m. from Bethpage; return Sunday, April 29. Cost: $181, single occupancy; $147, double; and $138, triple. Deposit: $25 per person. Tour includes bus transportation, two nights' accommodations, two full American breakfasts, two dinners, fully guided sightseeing tours, escort, all taxes and gratuities. Visit Mt. Vernon, Capitol, White House, Washington Monument and Lincoln Memorial, Smithsonian Institute's Air and Museum and other sights.

Williamsburg, Virginia — Leave Thursday, May 10, 8 a.m. from Bethpage; return Sunday, May 13. Cost: $279, single; $239, double; and $229, triple. Tour includes bus fare, three nights accommodations, four meals (three breakfast, one dinner), admission to Colonial Williamsburg and Busch Gardens, taxes/gratuities, stop at Baltimore Harbor.

U.S.A. Tour — Leave Saturday, September 1, 7 a.m. from Bethpage; return Sunday, September 23, 8 p.m. Cost: $1,570, single; $1,250, double; and $1,170, triple. Tour includes bus fare, 22 nights accommodation at first class hotels/motels; admission to Gateway Arch, local guides in Salt Lake City, San Francisco, Los Angeles, Colorado Springs and St. Louis; admission to Hearst Castle. (A day-by-day itinerary is available from Grumman Recreation.)

Complete information on all Recreation-sponsored bus tours are available in Plant 28A. Call Ext. 2133/2269, for additional information.

Portugal interlude

Grumman Recreation has lined up a super trip to Portugal for May 20-27.

The seven-day, six-night tour includes: round-trip jumbo jet air fare via TAP Air Portugal; six nights at the four star Hotel Cidadela in Cascais, convenient to beach, shopping and casino; continental breakfast daily; optional dinner plan, $6.50/daily; hotel/airport transfers; half day tour of Lisbon; fully escorted.

A suburb of Lisbon, Cascais is a quaint, seaside village, abounding in cobblestone streets with little shops and friendly people. It is part of the Portugese Riviera known as the "Playground of Kings," and is only a few minutes by tram from Estoril where you can try your luck at the casino.

Cost is based on occupancy per room: $699, single; $669, double; $659, triple; $449 for children sharing room with two adults (ages 2-12 years).

A deposit of $100 per person is required by April 1; balance is due on April 15. For more information, call Ext. 2133/2269.

United Kingdom

Grumman Recreation has teamed with American Express Travel Service to offer a 12-day tour of England and Scotland, July 4-15. Cost is $1,067 per person (double occupancy).

Tour includes: air fare, hotels, 16 meals, visits to an assortment of historic sites. Complete itinerary available from Grumman Recreation, Ext. 2133.

Aloha, Hawaii

The popular tour of Hawaii is back on the Grumman Recreation agenda this year.

The two-week tour covers Honolulu, Maui, and San Francisco from August 7-20. Package includes air fare; five nights at Prince Kuhio Hotel in Honolulu; five nights at Maui Surf Hotel; and three nights at Sir Francis Drake Hotel in San Francisco.

Rates are based on occupancy per room: $1,475, single; $1,199, double; $1,095, triple; children sharing room with parents, $570.

Call Ext. 2133 for more details.

Festa Italiano

How does Italy in October sound? Grumman Recreation is offering a 17-day tour from October 9 through October 17 for $1,449 (per person, double occupancy).

Tour includes: round-trip air fare, accommodations in Milan, Venice, Florence, Orvieto, Sorrento, Rome, continental breakfast daily, six dinners, tour escort.

For more details, call Recreation, Ext. 2133/2269.

Harlem Globetrotters

Grumman Recreation is now selling discount tickets — $8.50 seats for $6 — to the Harlem Globetrotters' game on February 17. The action begins at 7:30 p.m. at the Nassau Coliseum. Tickets are available at the Recreation Office in Plant 28A, or by calling Ext. 2269 or 2133.

Thespian alert

The Grumman Theater Guild will be presenting the play "A Thousand Clowns" for four performances on Fridays and Saturdays beginning April 6 and running through April 14. The shows will be presented at the Bethpage Junior High School on Broadway in Bethpage.

The Guild is a Bethpage-based community theater group. Despite carrying the Grumman name, the Guild is not restricted to employees.

To join the Guild, or for further information, call Bob Greaker at Ext. 4866 or Bonnie Ryan at (516) 931-7750.

Flying high. *Columbus Poole, scoring leader for the Grumman varsity basketball team, skys high above the crowd for a two point bucket. Poole totaled 20 points in the varsity squad's 84 to 60 win over inter-company rival GDS.*

Hot hoopsters lead league

The Grumman varsity basketball team held onto its undefeated record in the Industrial League with a 84 to 60 victory over inter-company rivals Grumman Data Systems (GDS).

As usual Columbus Poole topped all other scorers with 20 points followed by Rick Cooke with 18, Tom Walker with 11 and Fred Turner with 10. Jim McKistry pulled in 10 rebounds while Poole and Cooke added seven each. Turner dished out a team high nine assists to go along with his double digit scoring. On defense, the varsity hoopsters stole the ball a remarkable 20 times from the GDS squad.

In its previous Industrial league game, the varsity squad swamped a weak last place Canon Camera team by the score of 73 to 46. The Grummanites are currently tied for first place with perennial powerhouse IBM at seven wins and no losses. The two teams will meet in a game that will decide sole ownership of first place on Tuesday, February 14, 7 p.m. at Howitt Jr. High School in Farmingdale.

Open league play

In the Glen Cove Open league, the Grumman varsity has fared less well, dropping its last two games in close matches against Townsley and Baxter & Portnoy teams by scores of 79-66 and 93-91, respectively. In both games the Grummanites were without the services of their offensive leader Columbus Poole who was held out by a two-game suspension.

Olympics for Disabled

Volunteers needed for international games

Can you speak a foreign language? Keep score? Fix bicycles? Type? Saw? Administer first aid? Then the 1984 International Games for the Disabled needs you. An olympic-style sports competition for the world's top physically disabled athletes, the International Games for the Disabled needs volunteers from the Long Island/Metro N.Y. area to help out at the two-week event, June 16-30, in Nassau County.

Twenty-five hundred volunteers are needed for a variety of functions. Especially needed are those who can speak a foreign language to assist the 1,500 athletes who will be attending from some 45 countries. Volunteers are also needed to provide medical attention, keep score and record times of competitive events, drive buses, answer phones, coordinate music, fix electrical equipment, help with opening and closing day ceremonies and act as a team liaison.

'Once-in-a-lifetime'

"This is a once-in-a-lifetime opportunity for members of the community to be a part of an international sports event that is coming to the United States for the first time," said Rhoda White, volunteer coordinator for the 1984 Games. "To be able to witness, first hand, the outstanding abilities of these world-class blind, amputee and cerebral palsy athletes will inspire everyone involved."

Held in the same year and country as the able-bodied Olympics, the 1984 International Games for the Disabled is for qualifying athletes with physical disabilities and is not to be confused with the Special Olympics, which is for the mentally retarded. Athletes will compete in 20 different olympic-type events based upon their degree of disability, including gymnastics, basketball, weight lifting, wheelchair soccer, archery, track and field, swimming and equestrian events.

L.I. locale

Athletic competition will take place within a one-mile radius of Eisenhower Park and will center around the new $11-million Mitchel Park Athletic Complex. Several events will be held at Nassau Community College, Hofstra University and Nassau Veterans Memorial Coliseum.

"Nassau County was chosen as the site of the 1984 International Games for the Disabled, but we need the help of people from the surrounding areas to make the competition one we can be proud of," White said.

To find out how you can be a volunteer at the 1984 International Games for the Disabled contact Rhoda White, Director of Volunteers, International Games for the Disabled, Eisenhower Park-Special Populations Unit, East Meadow, N.Y. 11554 (516) 542-4493.

Loose puck. *Tomcats Dave Drew (22) and Jim Allen (20) skate to the aid of goalie Kevin Kiendle in a recent game against the West Point junior varsity hockey team. The Tomcats lost the hard-fought match seven goals to four in non-league play.*

Hockey squad holds onto second place

The Grumman varsity hockey team held onto its current second place berth in the Long Island Industrial Hockey League (LIIHL) with a 7-5 victory over a physical W.Y.N.Y. team recently. Defenseman Dave Drew lead all scorers with four goals followed by captain Jim Allen with two and center Mike LaBianca adding one.

Drew's four goals moved him into third place in the league's scoring standings behind teammates LaBianca and Tim Shelley, who hold first and second respectively.

In the WYNY game, Tomcat center Tom Carrol picked up three assists and Brian Rossman had two while defenseman Brian Burke, right wing Chris Fincken, Shelley, LaBianca and goalie Kevin Kiendle each added one assist.

The victory over the WYNY team was a rebound of sorts for the Tomcats, who had lost a tough non-league game to the West Point Junior Varsity team by a score of 7-4 on January 25.

The team next plays on February 16 versus Team USA in Nassau Coliseum at 6:30 p.m. Tickets to the game are free.

GRUMMAN plane news

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